

## **CCS-5 Publications and Other Performance Indicators March 2005 to March 2006**

### **CCS-5 Peer-Reviewed Journal Publications**

S. Del Valle, J. M. Hyman, H. W. Hethcote, and S. G. Eubank, "Mixing Patterns between Age Groups Using Social Networks", submitted to *Journal of Social Networks* (February 2006).

A. Hansson and C. M. Reidys, "A Discrete Dynamical Systems Framework for Packet-Flow on Networks," *Far East Journal of Mathematical Sciences*, January 2006.

D. Bokolamulla, A. Hansson, and T. Aulin, "Low-Complexity Interactive Detection Based on Limited Bi-Directional Trellis Search," *IEEE Proceedings – Communications*, January 2006.

A. Hansson, H. Mortveit, and C. M. Reidys, "On Asynchronous Cellular Automata," *Advances in Complex Systems*, Vol. 8, Pages 521-538, December 2005.

A. Hansson and T. Aulin, "Generalized APP Detection of Continuous Phase Modulation over Unknown ISI Channels," *IEEE Transactions on Communications*, Vol. 53, pp 1615-1619, October 2005.

H. S. Mortveit, C. M. Reidys, "Reduction of Sequential Dynamical Systems," *Advances in Complex Systems*, Volume 7, Number 1, Pages 1-13.

A. Hansson, C. M. Reidys, "A Discrete Dynamical Systems Framework for Packet-Flow on Networks." *Far East Journal Math Science*, 2006, In Press.

H. S. Mortveit, C. M. Reidys, "Neutral Evolution and Mutation Rates of Sequential Dynamical Systems," *Advances in Complex Systems*, Volume 7, Number 2-3, 2005, Pages 395-418.

A. Hansson, H. S. Mortveit, C. M. Reidys, "On Asynchronous Cellular Automata," *Advanced Complex Systems*, 2006, In Press.

G. Istrate, A. Percus, and S. Boettcher, "Spines of Random Constraint Satisfaction Problems: Definition and Connection with Computational Complexity," *Annals of Mathematics and Artificial Intelligence*, 44(2005), Pages 353-372.

G. Istrate, "Threshold Properties of Random Boolean Constraint Satisfaction Problems," *Discrete Applied Mathematics*, 153 (2005), issues 1-3, pp. 1-182.

C. Moore, G. Istrate, D. Demopoulos & M. Vardi, "A Continuous-Discontinuous Second

Order Transition in the Satisfiability of a Class of Random Horn Formulas,” *Proceedings of the 8th International Workshop on Randomization & Computation*, Lecture Notes in Computer Science, Vol. 3624, pp 414-425, Springer Verlag, 2005.

## **CCS-5 Books and Book Chapters**

G. Istrate, A. Percus, C. Moore, “Computational Complexity & Statistical Physics,” Oxford University Press.

C. M. Reidys, “Sequential Dynamical Systems Over Words,” *Annals of Combinatorics*, 2006. In Press.

C. M. Reidys, “Certain Morphisms of Sequential Dynamical Systems,” *Discrete Mathematics*, 2005, Volume 296 Number 2-3, Pages 245-257.

A. Percus, G. Istrate and C. Moore (editors), “Computational Complexity and Statistical Physics,” Santa Fe Institute, Studies in the Sciences of Complexity, Oxford University Press (2006).

A. Percus, G. Istrate, C. Moore, “When Statistical Mechanics Meets Computation,” Computational Complexity and Statistical, Physics, Oxford University Press, 2006.

A. Hansson, H. Mortveit, and J. Tripp, "Supercomputing Applications: Urban Road Traffic Simulation," Reconfigurable Computing: Accelerating Computation with Field-Programmable Gate Arrays, M. Gokhale and P. Graham, Editors, Springer, Dordrecht, The Netherlands, 2005.

S. Eidenbenz, “Finding Minimum Hidden Guard Sets in Polygons -- Tight Approximability Results,” Computational Geometry: Theory and Applications, 2006.

M. Cieliebak, S. Eidenbenz, and P. Penna, “Partial Digest is Hard to Solve for Erroneous Input Data,” Theoretical Computer Science, Volume 349, Issue 3, 16 December 2005, Pages 361-381.

M. Cieliebak, S. Eidenbenz, and G.J. Woeginger “Complexity and Approximability of Double Digest,” Journal of Bioinformatics and Computational Biology, Vol. 3, No. 2 (2005) 207-223, Imperial College Press.

S. Eidenbenz, L. Kroc, and J.P. Smith, “Maneuverable Relays to Improve Energy Efficiency in Sensor Networks,” PerCom Workshops 2005, Pages 411-417.

C.L. Barrett, S. Eidenbenz, L. Kroc, M.V. Marathe, and J.P. Smith, “Probabilistic Multi-Path vs. Deterministic Single-Path protocols for Dynamic Ad-hoc Network Scenarios,” ACM SAC 2005, Pages 1166-1173.

C.L. Barrett, S. Eidenbenz, L. Kroc, M.V. Marathe, and J.P. Smith, “Parametric

Probabilistic Routing in Sensor Networks,” MONET 2006 10(4), Pages 529-544 (2005).

### **CCS-5 Papers Published in Conference Proceedings**

S. Del Valle, “Planning for Pandemic Influenza: Impact of Intervention Strategies,” Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), Workshop: The Epidemiology and Evolution of Influenza, Rutgers University, Piscataway, NJ, January 2006.

S. Del Valle, “Mixing Patterns for Infectious Disease Transmission,” Society for Industrial and Applied Mathematics (SIAM), Annual Conference, New Orleans LA, July 2005.

S. Del Valle, “Mixing Patterns between Age Groups used by Social Networks,” The European Conference on Mathematical and Theoretical Biology (ECMTB), Dresden, Germany, July 2005.

G. Istrate, A. Hansson, S. Thulasidasan, M. Marathe, and C. Barrett, "Semantic Compression of TCP Traces," IFIP Networking Conference, Coimbra, Portugal, Feb. 2006.

G. Istrate, A. Hansson, S. Thulasidasan, C. Barrett, M.V. Marathe, “Semantic Compression of TCP Traces,” Proceedings of IFIP NETWORKING 2006, Springer.

C. Barrett, G. Istrate, M. Marathe, S. Thite, and V.S. Anil Kumar, “Strong Edge Coloring for Channel Assignment in Wireless Radio Networks,” Proceedings of IEEE FAWN 2006.

A. Hansson, H. Mortveit, J. Tripp, and M. Gokhale, "Urban traffic simulation modeling for reconfigurable hardware," in Proc. Industrial Simulation Conference, Berlin, Germany, June 2005, pp. 291-298.

J. Tripp, H. Mortveit, A. Hansson, and M. Gokhale, "Road Traffic Simulation on the Cray XD1," Electronic Proc. 47th Cray User Group Conference, Albuquerque, NM, May 2005.

J. Tripp, A. Hansson, M. Gokhale, and H. Mortveit, "Partitioning Hardware and Software for Reconfigurable Supercomputing Applications: A Case Study," Electronic Proc. Supercomputing Conference, Seattle, WA, April 2005.

J. Tripp, H. Mortveit, A. Hansson, and M. Gokhale, "Metropolitan Road Traffic Simulation on FPGAs," Proc. IEEE Symposium on Field-Programmable Custom Computing Machines, Napa, CA, Apr. 2005, pp. 117-126.

H. Djidjev, "A Linear-Time Algorithm for Finding a Maximal Planar Subgraph," SIAM Journal on Discrete Mathematics," 2005.

## **CCS-5 Classified & Unclassified Reports**

### **Unclassified Reports**

G. Istrate and A. Hansson, "Counting Preimages of TCP Reordering Patterns," LA-UR-05-8064, Los Alamos National Laboratory, Los Alamos, NM, Sept. 2005.

A. Hansson, G. Istrate, and S. Kasiviswanathan, "Combinatorics of TCP Reordering," LA-UR-05-5522, Los Alamos National Laboratory, Los Alamos, NM, July 2005.

H. Mortveit, A. Hansson, and J. Tripp, "A Hybrid CPU/FPGA Implementation of the TRANSIMS Micro-simulator," LA-UR-05-4855, Los Alamos National Laboratory, Los Alamos, NM, June 2005.

A. Hansson, G. Istrate, S. Kasiviswanathan, "Combinatorics of TCP Reordering," LA-UR 05-5522. (Currently under submission to Journal of Combinatorial Optimization).

A. Hansson, G. Istrate, "Counting Preimages of TCP Reordering Patterns," LA-UR-05-8064. (Currently under submission to Discrete Applied Mathematics).

S. Thulasidasan, "Internet and the City", LA-UR-05-0596.

S. Thulasidasan, "A Methodology for Semantic Compression of TCP Traces, LA-UR-05-0748. (Accepted to IFIP 2006).

S. Thulasidasan, "Strong Edge Coloring for Channel Assignment in Wireless Radio Networks, LA-UR-05-8694. (Accepted to FAWN 2006).

S. Del Valle, J. M. Hyman, H. W. Hethcote, and S. G. Eubank, "Mixing Patterns Between Age Groups Used by Social Networks," LA-UR-05-5296.

G. Yan, S.J. Eidenbenz, "Bluetooth Worms: Models Dynamics, and Defense Implications," LA-UR-06-1476, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

S.J. Eidenbenz, "Finding Minimum Hidden Guard Sets in Polygons—Tight Approximability Results," LA-UR-06-1477, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

S.J. Eidenbenz, "MIITS: Multi-scale Integrated Information and Telecommunication System," LA-UR-06-1472, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

S.J. Eidenbenz, F. Pan, S. Thulasidasan, K.D. Brislawn, A.A. Hansson, G. Istrate, C.M. Reidys, J.P. Smith, W. Wang, V. Ramaswamy, S.M. Granen, "MIITS—System Design," LA-UR-06-1473, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

S. Del Valle, S.M. Mniszewski, J.M. Riese, J.P. Smith, P.D. Stroud, and S.J. Sydoriak, "Planning for Pandemic Influenza: Impact of Intervention Strategies," LA-UR-06-1962, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

H.N. Djidjev, "A Linear-Time Algorithm for Finding a Maximal Planar Subgraph," LA-UR-06-0432, Los Alamos National Laboratory, Los Alamos, NM, February 2006.

L. Aleksandrov, Hristo N. Djidjev, Hus Guo, Anil Maheshwari, Doron Nussbaum, Jorg-Rudiger Sack, "Approximate Shortest Path Queries on Weighted Polyhedral Surfaces," LA-UR-06-1475 Los Alamos National Laboratory, Los Alamos, NM, February 2006.

H. Djidjev, Imrich Vrt'o, "Planar Crossing Numbers of Genus  $g$  Graphs," LA-UR-06-1474, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

A.A. Hansson and C.M. Reidys, "A Discrete Dynamical Systems Framework for Packet-Flow on Networks," LA-UR-06-0431, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

A.A. Hansson, S.J. Eidenbenz, J. Howse, D. Hush, G. Istrate, M. Nassr, G. Pandurangan, R. Raman, C.M. Reidys, J.P. Smith, S. Thulasidasan, "Generic Cities," LA-UR-06-0414, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

S.J. Eidenbenz, A.A. Hansson, V. Ramaswamy, and C.M. Reidys, "On a New Class of Load Balancing Network Protocols," LA-UR-06-1963, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

S.J. Eidenbenz, F. Pan, C.D. Tallman, S. Thulasidasan, "Potential Infrastructure Effects of Hurricane Wilma," LA-CP-06-0306, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

C.D. Tallman, S. Thulasidasan, S.J. Eidenbenz, "Potential Infrastructure Effects of Hurricane Ophelia – Telecom Sector," LA-CP-06-0307, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

S.J. Eidenbenz, F. Pan, C.D. Tallman, S. Thulasidasan, "Potential Infrastructure Effects of Hurricane Rita – Telecom Sector," LA-CP-06-0308, Los Alamos National Laboratory, Los Alamos, NM, March 2006.

## **CCS-5 Professional Society Officer and Program Committee Memberships**

S. Eidenbenz, "Technical Program Committee of The Third IEEE International Conference on Mobile Ad-hoc and Sensor Systems," (MASS 2006), (MASS has quickly established itself as one of the premier conferences in ad hoc networks. It will be held in Vancouver in October).

S. Eidenbenz, "Program Committee of the Security, Privacy, and Trust for Pervasive Computing Applications," (SPTPA 2006), Workshop at COMPSAC 2006. (Beginning 2006, COMPSAC is designated as the IEEE Computer Society Signature Conference on Software Technology and Applications. It is one of the oldest conferences of IEEE Computer Society).

S. Eidenbenz, "Technical Program Committee of the SecPerU 2006 International Workshop on Security, Privacy and Trust in Pervasive and Ubiquitous Computing," (Held in conjunction with the IEEE International Conference on Pervasive Services IEEE ICPS '06).

S. Eidenbenz, "Technical Program Committee of ACM SIGMOBILE," MobiHoc 2006 Conference. (MobiHoc is the key conference for mobile ad hoc network research and is expected to have an acceptance ratio of about 6 percent this year).

H. Djidjev, Member of the Laboratory's LDRD DR Review Committee.

H. Djidjev, serves on the "Editorships of Professional Journals and Memberships on Editorial Advisory Boards."

H. Djidjev, editor and member of "The Standing Committee of the Journal Parallel Processing Letters."

H. Djidjev, appointed Research Adjunct Professor, School of Computer Science, Carleton University, Ottawa.

## **CCS-5 Professional Honors, Awards, and Election to National Scientific and Engineering Societies**

M.B. Gohkale, J. Tripp, A. Hansson, H. Mortveit, and M. Nassr, "ReLocATE -

Reconfigurable Logic Accelerated Traffic Engine," R&D100 Award Entry, Feb. 2006.